

NATIONAL REPORT

-THAILAND-

Mr. Samruay Meenakarn and Mr. Prapun Leepayakoon

Fishery Management and Administration Bureau

Department of Fisheries, Thailand

I. Information on Wild Populations

a. Species of seahorses

At least the following four species of seahorses are distributed in Thai (and adjacent) waters:

1. *Hippocampus kuda*
2. *H. trimaculatus*
3. *H. spinosissimus*
4. *H. mohnokei*

Researchers from Bangsaen Institute of Marine Sciences (BIMS), Burapa University have verified these 4 species. The other species such as *H. histrix*, *H. kellogi* and *H. comes* are being documented by researchers. At least two species, *H. kuda* and *H. spinosissimus*, are extensively landed, and both are generally considered abundant in Thai waters.

b. Area of distribution

Seahorses are distributed over most of the coastal environment and potential seahorse habitat is extensive. However, seahorse populations may exhibit a high degree of fragmentation due to the patchy nature of suitable habitat and extensive habitat loss resulting from human activities such as coastal development, dredging, infilling, and removal of mangroves and seagrasses. In Thai waters, seahorses are generally distributed in the Gulf of Thailand and the Andaman Sea.

c. Abundance

Seahorses are characterized by sparse distribution and low population density, which may be related to their limited mobility and small home range. Based on fishery-dependent data and interviews with fishermen and traders, it is evident that seahorses have declined in abundance in many range states that have seahorse fisheries. Reports and strong circumstantial evidence indicate both recruitment overfishing (declining numbers) and growth overfishing (diminishing size) among a number of the commonly traded species.

II. Nature of Seahorse Fisheries

Seahorse fisheries in Thailand have been operating since 1970 from fishing boats 5 to 6m long, equipped with small mesh nets. The harvesting depth is 3 to 5m offshore. The high season for seahorse fisheries is from October to February. The yield of seahorses in Thailand is from 3 to 4 kg per fishing effort.

At present seahorse fishing is declining and no fishing is aimed specifically at seahorses. Thai fishermen currently do not specifically target seahorses in Thai waters. The market for live seahorses for display in as aquarium fish is not large and hence few fishermen collect live seahorses. There is also a ban on exporting live seahorses from Thailand and therefore the demand for live seahorses is very low.

The main source of seahorses is as bycatch from local and commercial trawlers and crab fishing boats. Bycatch currently accounts for majority of specimens intended for Traditional Chinese Medicine (TCM) and curio markets, whereas directed fisheries are usually the source of live specimens for the pet trade, as well as the dried specimen trade. The fishing effort yields approximately 20 to 30 seahorses per hour and the main species harvested are *Hippocampus kuda* and *H. spinosissimus*.

Seahorses are separated from fish during sorting, and once the fishing boats land at a port, seahorses are sold to local merchants. Exporters from Bangkok buy seahorses from local merchants every 2 to 3 months. The export volume is around 200 to 500 kilograms per shipment and the importing countries are mainly China, Hong Kong and Chinese Taipei.

Seahorses in Thailand come from Thai and foreign waters. Thailand has signed agreements on seahorse fishing with other countries such as Indonesia, Malaysia, Madagascar, Cambodia, Myanmar, Oman and Bangladesh. There are 1400 to 1500 fishing boats listed under these agreements for the year 2003-2004. The numbers of fish and other species landed monthly are between 21,000 and 30,000 metric tons. It is unfortunate that the quantity of seahorses harvested cannot be estimated from these figures.

Preliminary surveys conducted by researchers from the Bangsaen Institute of Marine Science, Burapa University showed that 2 to 5 kilograms of seahorses are harvested per fishing trip but there are no estimates from local fishing boats. There are also no reliable record of seahorse capture as a result of illegal trawling in Thailand.

Conservation Program

There are seahorse populations in the Gulf of Thailand and the Andaman Sea. The populations are declining and no specific studies have been conducted to determine the effect of fishing on the diversity of seahorse species. At present, no regulation is in place to protect seahorses from fishing activities.

Seahorses are not among the protected species listed under the Wild Animal Reservation and Protection Act (WARPA) B.E.2535 (1992) which regulates hunting, possession, breeding, trading, import, or export of wildlife. The Thai Department of Fisheries has therefore issued the following fisheries environmental regulations under various related laws in order to protect seahorse habitat:

1. Entry and Exit of Goods Act, B.E.2522 (1979)

Four hundred species of live marine ornamental fish are listed in the Ministerial Regulation No. 46 B.E.2531 (1988). Under this Ministerial Regulation, the export of listed species of live marine ornamental fishes is prohibited. The list includes 4 species of seahorses namely: *Hippocampus kuda*, *H. trimaculatus*, *H. spinosissimus*, and *H. mohnokei*.

2. National Park Act, B.E.2504 (1961)

Eighteen areas are protected as National Marine Parks under this Act. Together these parks occupy an area of 3,671 square kilometers and cover 70% of the total coral reef area in Thailand or approximately 1% of the total surface water (368,280 square kilometers). No person is allowed to collect and carry resources out of the park including seahorse species.

3. Fisheries Act, B.E. 2490 (1947)

Destructive fishing methods such as explosive dynamites, poisonous substances and direct electric currents are prohibited under this Act. Trawling within three kilometers offshore is illegal. The import of live Syngnathids is prohibited unless permitted by the Director-General of the Fisheries Department. In order to protect seahorses from overfishing, there are other programs such as the prohibition of fishing in protected areas.

Seahorse Culture in Thailand

Bangsaen Institute of Marine Sciences, Burapa University, has conducted experiments on *Hippocampus kuda* culture since 1999. The females and males are collected and stocked in 2x5 meter concrete tanks or 3 cubic meter fiberglass tanks. They breed and spawn in the tanks. Each female can spawn up to 100-200 baby seahorses. Seahorses can be differentiated by the naked eye as being male or female from when they are around 6 to 7 months old. From the study, the survival rate from the time of spawning to 1 month was 35 to 50% and from 1 month to 1 year was 10 to 20%.

At present, the Bangsaen Institute has had success in developing a culture technique to produce F2 generations. During 2542-2546, approximately 10,000 one to six month old seahorses have been released to sea.

III. Extent of International Trade

As Thailand is a party to CITES since 1983, aquatic animals are monitored under the Department of Fisheries' regulations. Department of Fisheries is the body that has the authority on management and science issues. Therefore, permits for fishing and import or export of fish and fisheries products has to be issued by this agency. There are many ports that import and export fisheries products. Fisheries staff work closely with staff from the Customs Department to inspect and control the export of dried seahorses. Thailand has issued a law to ban export of live seahorses. Only dried seahorses can be exported.

The Department of Fisheries has no right to inspect dried seahorses at the port of exit except if the importing country requires such inspection certificates. If a certificate is required, the Department of Fisheries can collect information on the quantity being exported. Otherwise no information is obtained.

Since seahorses will be listed under CITES from May 2004, seahorse exporters need to obtain permission from the Department of Fisheries. Thereafter, comprehensive information on seahorse exports from Thailand will be collected.

Seahorse Exports from Thailand

The major consumers of seahorses from Thailand include China, Malaysia, Hong Kong and Chinese Taipei. As part of the CITES agreements, Thailand's Department of Fisheries has issued 18, 31, 12, and 5 certificates for dried seahorses to exporters (3,630, 10,538, 2,760, and 1,440 kg respectively) from the year 2000 until 2003 (See Table 1).

Table 1. Amount of dried seahorses exported from Thailand in 2000-2003

Country	Year 2000		Year 2001		Year 2002		Year 2003	
	No. Of CITES Certificate	Dried seahorses [kg]	No. Of CITES Certificate	Dried seahorses [kg]	No. Of CITES Certificate	Dried seahorses [kg]	No. Of CITES Certificate	Dried seahorses [kg]
Chinese Taipei	13	1,630	13	3,848	2	160	-	-
Malaysia	1	100	3	720	-	-	-	-
Hong Kong	2	1,600	7	1,670	7	1,400	4	1,140
China	2	300	8	4,300	3	1,200	1	300
Total	18	3,630	31	10,538	12	2,760	5	1,440

Source: Department of Fisheries, Thailand